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Assessing key vulnerabilities and the risk from climate change

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Book: Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change

Year: 2007

Publisher: Cambridge University Press (Cambridge, England)

Abstract:

The purpose of this chapter is two-fold. First, it synthesises information from Working Group I (WGI) and Chapters 3-16 of Working Group II (WGII) of the IPCC Fourth Assessment Report (AR4) within the uncertainty framework established by IPCC (Moss and Schneider, 2000; IPCC, 2007b) and the risk management approach discussed in Chapter 2, and identifies key vulnerabilities based on seven criteria (see Section 19.2).A focus on key vulnerabilities is meant to help policy-makers and stakeholders assess the level of risk and design pertinent response strategies. Given this focus, the analytic emphasis of this chapter is on people and systems that may be adversely affected by climate change, particularly where impacts could have serious and/or irreversible consequences. Positive impacts on a system are addressed when reported in the literature and where relevant to the assessment of key vulnerabilities. A comprehensive assessment of positive and negative climate impacts in all sectors and regions is beyond the scope of this chapter, and readers are encouraged to turn to the sectoral and regional chapters of this volume (Chapters 3-16) for this information. Furthermore, it is acknowledged that the impacts of future climate change will occur in the context of an evolving socioeconomic baseline. This chapter attempts to reflect the limited literature examining the possible positive and negative relationships between baseline scenarios and future impacts. However, the purpose of this chapter is not to compare the effects of climate change with the effects of socio-economic development, but rather to assess the additional effects of climate change on top of whatever baseline development scenario is assumed. Whether a climate change impact would be greater or smaller than welfare gains or losses associated with particular development scenarios is beyond the scope of this chapter but is dealt with in Chapter 20 and by Working Group III (WGIII). Second, this chapter provides an assessment of literature focusing on the contributions that various mitigation and adaptation response strategies, such as stabilisation of greenhouse gas concentrations in the atmosphere, could make in avoiding or reducing the probability of occurrence of key impacts. Weighing the benefits of avoiding such climate-induced risks versus the costs of mitigation or adaptation, as well as the distribution of such costs and benefits (i.e., equity implications of such trade-offs) is also beyond the scope of this chapter, as is attempting a normative trade-off analysis among and between various groups and between human and natural systems. (The term ‘normative’ is used in this chapter to refer to a process or statement that inherently involves value judgements or beliefs.) Many more examples of such literature can be obtained in Chapters 18 and 20 of this volume and in the Working Group III (WGIII) AR4.

Source: http://www.ipcc.ch/pdf/assessment-report/ar4/wg2/ar4-wg2-chapter19.pdf

Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES)

Special Report on Emissions Scenarios (SRES) Scenario: SRES A2

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Extreme Weather Event, Temperature

Extreme Weather Event: Drought, Flooding, Hurricanes/Cyclones, Wildfires

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Elderly, Low Socioeconomic Status, Racial/Ethnic Subgroup

Other Racial/Ethnic Subgroup: Indigenous

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content